

C. REMARKS

In the Office Action of 14 June 2004, claims 1-5, 10, 13, 15, 18-25, 27, 28, 31, 35, 37, and 39-45 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 5,779,561 to *Sullivan et al.*; claims 28-30, 32, 35-37, 39, and 41-46 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 5,984,806 to *Sullivan et al.*; claims 6-9, 30, and 32 were rejected under 35 U.S.C. § 103 as being obvious over U.S. Patent No. 5,779,561 to *Sullivan et al.* in view of U.S. Patent No. 5,984,806 to *Sullivan et al.*; claims 11, 12, 14, 16, 33, 34, 38, 47-51, and 56 were rejected under 35 U.S.C. § 103 as being obvious over U.S. Patent No. 5,779,561 to *Sullivan et al.* in view of U.S. Patent No. 5,779,563 to *Yamagishi et al.*; and claims 52, 53, 54, and 55 were rejected under 35 U.S.C. § 103 as being obvious over U.S. Patent No. 5,779,561 to *Sullivan et al.* in view of U.S. Patent No. 5,779,563 to *Yamagishi et al.*

Claims 14, 17, 34, 38, 40, 42, 44, 46, 51, and 53 have been objected to for various informalities, which have been addressed by the amendments. Finally, claims 17 and 40 were objected to as claiming a specific gravity not disclosed within the Specification; appropriate amendments have been made to claims 17 and 40.

Claims 10 and 36 have been amended to recite a ball size of “less than about 1.680.” Claim 28 has been amended to clarify and in no way to narrow the claim; therefore, no estoppel effect is to be attached. The remainder of the rejections are respectfully traversed.

The present application describes and claims golf balls. Golf balls in accordance with the principles of the present invention exhibit exceptional performance properties and have a high velocity when struck by a driver. A golf ball of the present invention comprises a core, a mantle, and a cover layer. The core is formed of a polybutadiene compound. The mantle is comprised a terpolymers. The cover layer is formed of a composition of one or more ionomers.

The rejections are respectfully traversed for at least the following reasons:

- The high velocity and coefficient of restitution (C.O.R.) properties of golf balls constructed in accordance with the principles of the present invention are not inherent in a basic three-piece construction.
- The 1.68 in., 1.65 in. and 1.62 in. ball diameters are not approximately the same size in a golf ball.
- U.S. Patent No. 5,779,563 to *Yamagishi et al.* describes a ball construction that maximizes moment of inertia; U.S. Patent No. 5,779,563 to *Yamagishi et al.* does not describe a construction where all of the layers are the same specific gravity.
- There is a difference between balancing a golf ball (equivalent specific gravity for each layer) and maximizing moment of inertia (moving as much weight as possible to the outermost layers of the golf ball).
- DuPont HPF is different from a standard ionomer. A standard ionomer cannot be processed at 100% neutralization – and that magnesium stearate is not an inert filler, but a method for allowing the creation of a 100% neutralized ionomer that can be processed.

More particularly, U.S. Patent No. 5,779,561 to *Sullivan et al.* (“*Sullivan ‘561*”) describes a golf ball. *Sullivan ‘561*’s multi-layer golf ball has a central core, an inner cover layer containing a non-ionomeric polyolefin material and a filler, and a resin composition outer cover layer. The combined thickness of the inner and outer cover layer preferably is at least about 0.10 inches. The golf ball has a coefficient of restitution of at least about 0.750.

The Office Action argues that the initial velocity claims of the present application would be inherent in the golf ball construction described in the *Sullivan ‘561* patent. This assumption is incorrect. The golf ball described in *Sullivan ‘561*, with the materials described and the properties as illustrated in Table 4, would not produce a velocity of the present invention when hit with a driver club as described in the present application.

In fact, *Sullivan ‘561 teaches away* from the present invention. Specifically, *Sullivan ‘561* states in column 2 that the “industry strives to maximum C.O.R. without violating (the U.S.G.A. [United States Golf Association] initial velocity) limit.” Further, in column 5 *Sullivan ‘561* describes the need for “the coefficient of restitution to be carefully controlled in all commercial golf balls...” to remain within the U.S.G.A. requirements for initial velocity. *Sullivan ‘561* goes on to say “[s]ince the C.O.R. of the ball is related to the ball’s initial

velocity, it is highly desirable to produce a ball having sufficiently high C.O.R. to closely approach the U.S.G.A. limit on initial velocity”.

A golf ball constructed in accordance with the principles of the present invention *will not fall* within the U.S.G.A. limitations for initial velocity. *Sullivan* ‘561 describes a golf ball construction to produce a high C.O.R. which approaches the U.S.G.A. limit on ball velocity – a ball constructed in accordance with the principles of the present invention will have a drastically higher C.O.R. than the examples in *Sullivan* ‘561.

Sullivan ‘561 illustrates golf balls with a finished ball C.O.R. of between 0.761 and 0.775 (Table 4). Based upon the teachings of *Sullivan* ‘561, this C.O.R. range should produce a ball with U.S.G.A. initial velocity approaching the limit of 255 ft/s. The C.O.R. is reported by *Sullivan* ‘561 “adjusted” to a test velocity of 125 ft/s.

The present application illustrates (in Table 4) the C.O.R. value of golf balls constructed in accordance with the principles of the present invention at test velocities of 150 ft/s and 175 ft/s. Since the relationship between C.O.R. and test velocity is linear, if the C.O.R. data from the examples in the present application’s Table 4 were adjusted to a velocity of 125 ft/s, the resulting C.O.R. would range from 0.841 to 0.851. This is significantly higher than the C.O.R. data illustrated in *Sullivan* ‘561.

Based upon the higher C.O.R., it is clear that a significant increase in U.S.G.A. initial velocity would be observed. Further, it is clear that a significant increase in the initial velocity of the ball (when hit with a golf club) would be observed. Therefore, it is not “inherent in the construction” described by *Sullivan* ‘561 that the ball velocity (claim 1) or C.O.R. (claim 2) of the present invention would be present in *Sullivan* ‘561. For this reason alone, the rejection of claims 1-5, 10, 13, 15, 18-25, 27, 28, 31, 35, 37, and 39-45 should be withdrawn. Likewise, as the rejection of claims 6-9, 30, and 32 is based on *Sullivan* ‘561 in view of U.S. Patent No. 5,984,806 to *Sullivan et al.*, the rejections of these claims should be withdrawn.

Additionally, claims 10, 13 and 15 describe different ball sizes of less than about 1.680 in., about 1.650 in., and about 1.620 in., respectively. The Office Action argues that a ball

diameter of 1.680 in. is about the size of 1.65 in. and 1.62 in. Since the U.S.G.A. limitation on ball diameter is a minimum of 1.68 in., it is not appropriate to assume that these sizes are equivalent: this argument essentially says that a legal ball is equivalent to an illegal ball (size). For this additional reason, the rejection of claims 10, 13 and 15 should be withdrawn.

Nor does the secondary *Sullivan* reference save the deficiencies of *Sullivan* '561. U.S. Patent No. 5,984,806 to *Sullivan et al.* ("*Sullivan* '806") describes a perimeter weighted golf ball with visible weighting. A smaller and lighter core is produced and metal particles, or other heavyweight filler materials, are included in the cover compositions. This results in a molded golf ball exhibiting enhanced perimeter weighting. Preferably, the particles are included in a relatively thick inner cover layer (or mantle) of a solid, three-piece multi-layered golf ball. Patterns of weighting material are incorporated in the ball along the outer periphery of the ball so that the pattern is visible along the ball's exterior. The size and weight of the core is reduced in order to produce an overall golf ball that meets, or is less than, the 1.62-ounce maximum weight limitation specified by the U.S.G.A.

The Office Action points out that *Sullivan* '806 describes a coefficient of restitution of 0.701 to 0.825. *Sullivan* '806 indicates in column 2, lines 58-65, that the C.O.R. is measured at a test velocity of 125 ft/s. As illustrated above, it is not "inherent in the construction" described by *Sullivan* '806 that the C.O.R. of the present invention would be present in *Sullivan* '806. For this reason alone, the rejection of claims 28-30, 32, 35-37, 39, and 41-46 should be withdrawn.

In addition, the Office Action's argument that *Sullivan* '806 inherently meets claim 35 is without merit. In claim 35 all of the components of the ball have approximately the same specific gravity. This is not illustrated anywhere within *Sullivan* '806. For this additional reason, the rejection of claim 35 should be withdrawn.

In addition, claims 36, 37 and 39 again describe different ball sizes of less than about 1.680 in., about 1.650 in., and about 1.620 in., respectively. Because the Office Action's argument erroneously says that a legal ball is equivalent to an illegal ball (size), for this additional reason the rejection of claims 36, 37 and 39 should be withdrawn.

Nor does the combination of *Sullivan* '561 with *Sullivan* '806 overcome the deficiencies of either. *Sullivan* '561 is directed to a multi-layer golf ball has a central core, an inner cover layer containing a non-ionomeric polyolefin material and a filler, and a resin composition outer cover layer. *Sullivan* '806 is directed to a perimeter weighted golf ball with visible weighting. Where is the motivation to combine *Sullivan* '561 with *Sullivan* '806? Would the resulting golf ball have or not have perimeter weighting with visible weighting? Unless one assumes that any reference from a given art can be combined with any other reference – which is not the proper legal standard – there is no support for the alleged combination. For this reason, the rejection of claims 6-9, 30, and 32 should be withdrawn.

In addition, the suggested combination of the *Sullivans* describes use of an ionomer that can be totally or partially neutralized. To one skilled in the art, a common ionomer (as described by *Sullivan*) with no modification additives cannot be processed at 100% neutralization. At 100% neutralization, the ionomer will not flow. E.I. du Pont de Nemours and Company has produced materials (under the trade name DuPont HPF) that are neutralized 100%, and are modified to allow sufficient flow to be injection molded. The description of *Sullivan* in columns 24-25 describes use of various materials as *inert fillers*. A list of (basically) every existing filler is provided in column 25. The use of magnesium stearate by DuPont in the present invention is not as inert filler, but as a method for allowing flow at 100% neutralization, and as a method of improving performance properties. This is different than described in the *Sullivan* patents. For this additional reason, the rejection of claims 6-9, 30, and 32 should be withdrawn.

Finally, the Office Action tries to overcome the deficiencies of the *Sullivan* '561 reference with U.S. Patent No. 5,779,563 to *Yamagishi et al.* ("*Yamagishi*"). *Yamagishi* describes a multi-piece solid golf having a solid core and a cover of at least two layers enclosing the core. The solid core is formed of a rubber base and has a specific gravity of at least 1.00. The cover is formed of a thermoplastic resin and the cover outer layer has a greater specific gravity than the core or a cover inner layer.


The Office Action indicates that *Yamagishi* discloses a golf ball wherein the core, intermediate layer and cover have approximately the same specific gravity. The Office Action cites *Yamagishi* for the range in the core, intermediate layer and the cover. However, *Yamagishi* does not specify all three layers as having approximately the same specific gravity. *Yamagishi* teaches increasing the moment of inertia of the golf ball by moving as much weight to the outer portion of the golf ball as possible. Thus, in column 2, lines 31-34, *Yamagishi* teaches that the cover outer layer must have a higher specific gravity than the cover inner layer, thereby specifically *teaching away* from the present invention. For this reason alone, the rejection of claims 11, 12, 14, 16, 33, 34, 38, 47-51, and 56 should be withdrawn.

Finally, with respect to claims 52, 53, 54, and 55, the Office Action indicates that it would be obvious to incorporate an ionomer that is "100% neutralized..." in order to increase the durability of the golf ball. As is understood by one "skilled in the art", increasing the neutralization level of an ionomer decreases the impact durability of the golf ball. The ionomer becomes more brittle as the neutralization level increases. For this reason, the rejection of claims 52, 53, 54, and 55 should be withdrawn

Therefore, it is respectfully submitted that all of the claims recite patentable subject matter and are in condition for allowance. Accordingly, favorable reconsideration and allowance of the application is respectfully requested.

Respectfully submitted,

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